

DataLab seminar

SWITCHING DIFFUSIONS AND APPLICATIONS

PLACE: Aula Gris II, ICMAT (Campus de Cantoblanco, Madrid)

DATE: Wednesday, 5 July, 2017 - 12:00 h

SPEAKER: George Yin (Wayne State University, EE. UU.)

ORGANISER: SPOR - ICMAT

ABSTRACT: Many problems in control and optimization require the treatment of systems in which continuous dynamics and discrete events coexist. This talk presents a survey on some of our recent work on such systems. In the setup, the discrete event is given by a random process with a finite state space, and the continuous component is the solution of a stochastic differential equation. Seemingly similar to diffusions, the processes have a number of salient features distinctly different from diffusion processes. After providing motivational examples arising from wireless communications, identification, finance, singular perturbed Markovian systems, manufacturing, and consensus controls, we present necessary and sufficient conditions for the existence of unique invariant measure, stability, stabilization, and numerical solutions of control and game problems.